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The PRESENT ASPECT of STATISTICAL INQUIRY in relation to SHIPPING CASUALTIES. By HENRY JEULA, F.R.G.S., F.S.S., Honorary Secretary to the Statistical Committee of Lloyd's.

[Read before Section F, British Association, at Norwich, August, 1868.]

THE loss of life and property by reason of marine casualties, has of late been so very considerable, that a short paper upon the subject of statistical inquiry directed thereto, can scarcely be out of place in the Section of Economic Science and Statistics, and it may not be altogether uninteresting to the members of the British Association to be furnished with a few particulars relating to the results at present attained in the effort to bring system and arrangement to bear upon a matter so intimately connected with us as a maritime people.

With the exception of some papers contributed several years since to the "Assurance Magazine," and more recently to the *Journal of the Statistical Society*, but little appears to have been done in the direction of systematising, and thus *utilising* the information which is continually accumulating from various sources in relation to the accidents so constantly occurring to our mercantile marine.

The admirable "Wreck Register of the Board of Trade" leaves, indeed, little to be desired in its own sphere; but dealing only with wrecks and disasters around our own coasts, the large and important area beyond remained unexplored.

A publication entitled "Lloyd's List," known, it may be, to many members of the Association, containing numerous reports of losses and casualties in different parts of the world, is issued daily by the committee for managing the affairs of Lloyd's, and it occurred to the writer, that if only this information, although not so wide-spread and complete as could be wished, were yet carefully arranged and so treated that it should be permanently available, very considerable advantage would ultimately accrue alike to sailors, shipowners, merchants, and underwriters.

An attempt was privately made to carry out this idea in relation to the casualties reported during the year 1864, and was so far successful that the Statistical Committee of Lloyd's was formed in 1866, and has already issued two annual publications for the years 1866 and 1867 respectively, giving a more complete analysis of

wrecks and marine disasters spread over a larger area of observation than, it is believed, had ever been previously accomplished.

This analysis is a more elaborate and carefully compiled statement than the private one of 1864, but as by using the latter a comparison of *three years* is obtained, it may not be without interest to place a few of the more prominent divisions of casualty during those years respectively in contrast, merely premising that the record of 1864 was confessedly only "*approximate*," and must be accepted simply as such. (Table I, Appendix.)

As we learn from the "Wreck Register of the Board of Trade," that the number of wrecks and casualties occurring on and around our own coasts in the year 1864 was less than usual, it is not unreasonable to suppose that this exceptional lightness in disaster *may* have extended to other localities as to which we have no definite information, while it is equally possible that in the tables for 1864 *all* the casualties reported may not appear, and consequently the subsequent years be placed to that extent in a somewhat too unfavourable comparison.

The comparative approximation of the above figures in many of the divisions can scarcely fail to strike the careful observer, especially in relation to the two years 1866 and 1867, as to which the record may doubtless be taken as more thoroughly reliable.

Almost at the same moment that the subject of more extended statistical inquiry relating to marine casualties was occupying the attention of the Committee of Lloyd's, the "Administration du "Bureau Veritas," in Paris, was arranging a scheme having the same object in view, and from the interesting documents published by that body, I am enabled to lay before you, with some additions, the results so far attained.

A Table of Lost and Missing Vessels reported by the "Bureau Veritas."

	1866.			1867.		
	Lost.	Missing.	Total.	Lost.	Missing.	Total.
Sailing vessels	2,581	183	2,764	2,711	189	2,900
Steamers	165	3	168	131	14	145
Total	2,746	186	2,932	2,842	203	3,045

The year 1867 showing an excess as thus recorded on 1866, of 113 vessels lost or missing.

In the statements of the "Bureau" the *various nationalities* of the vessels are given, as far as they can be ascertained, from which the particulars (Table II, Appendix) are extracted, adding the percentages upon the total of each year.

For the purpose of bringing the information contained in this short paper to as late a date as possible, I have placed in the Appendix a statement of the wrecks and casualties for *the first quarter of the present year*, compared with the *average* of the two previous years—the most complete comparison as yet attainable. (Table III.)

It is very satisfactory to note that the casualties reported in the first quarter of 1868 were considerably below the average of the previous two years in number, although they appear to have been of a somewhat more serious character.

The comparatively small difference in the *proportions* of the several casualties of the respective years will again strike attention, ranging as for the most part it does between about half and $1\frac{1}{2}$ per cent., only in *one* instance nearly reaching 4 per cent., and in *another* just exceeding 6 per cent. of variation.

Stranding and collision stand out pre-eminently in the percentage tables as the most terrible and numerous of accidents, and as a careful watch and good look-out are of the first importance in preventing each of such casualties, it may not be undesirable to add the following short comparative statement of the number of men employed in the year 1850, and in 1866, both per vessel and per 100 tons, relating as well to sailing vessels as to steamers:—

A Table compiled from the "Statistical Abstract for the United Kingdom," issued by the Board of Trade, showing the Number of Men Employed in the "Registered Sailing and Steam Vessels (exclusive of River Steamers) of the United Kingdom, Employed in the Home and Foreign Trade" (Masters of Vessels are not included), in the Years 1850 and 1866 respectively.

	Sailing Vessels.		Steamers.		Total.	
	Men Employed per Sailing Vessel.	Men Employed per 100 Tons.	Men Employed per Steamer.	Men Employed per 100 Tons.	Men Employed per Vessel.	Men Employed per 100 Tons.
<i>Home Trade—</i>						
1850	4·36	5·78	14·03	8·29	4·70	5·97
'66	3·34	4·60	14·39	6·12	3·93	4·83
<i>Partly Home and partly Foreign Trade—</i>						
1850	6·92	4·63	19·80	7·47	7·10	4·69
'66	6·50	3·61	18·64	4·34	7·31	3·72
<i>Foreign Trade—</i>						
1850	13·14	4·38	44·34	8·44	13·51	4·47
'66	14·63	3·02	36·67	5·18	16·73	3·31
<i>Total—</i>						
1850	8·17	4·71	20·42	8·31	8·46	4·83
'66	7·75	3·33	26·43	5·32	9·04	3·60

The facts shown in the foregoing table are brought out with perhaps greater distinctness in the one below :—

A Table showing the Percentages of Increase or Decrease in the Number of Men Employed per Ship and per One Hundred Tons during the Seventeen Years from 1850 to 1866 inclusive.

	Sailing Vessels.		Steamers.		Total.	
	Men Employed per Sailing Vessel.	Men Employed per 100 Tons.	Men Employed per Steamer.	Men Employed per 100 Tons.	Men Employed per Vessel.	Men Employed per 100 Tons.
<i>Home Trade—</i>						
Increase per cent.	—	—	2·57	—	—	—
Decrease „	23·39	20·42	—	26·18	16·38	19·10
<i>Partly Home and partly Foreign Trade—</i>						
Increase per cent.	—	—	—	—	2·96	—
Decrease „	6·07	22·03	5·86	41·90	—	20·68
<i>Foreign Trade—</i>						
Increase per cent.	11·34	—	—	—	23·83	—
Decrease „	—	31·05	17·30	38·63	—	25·95
<i>Total—</i>						
Increase per cent.	—	—	29·43	—	6·86	—
Decrease „	5·14	29·30	—	35·98	—	25·47

The record of the Statistical Committee of Lloyd's, embraces a careful geographical scheme of registration, which will, it is hoped, after a few years, become of considerable value; at present, the interval since its formation has been too short to afford reliable and useful results.

It would, therefore, appear that in view of the gradual development of careful inquiry, both in the United Kingdom and on the Continent of Europe in relation to the character and causes of disasters at sea, the friends of *economic science and statistics* may rejoice in their application to a subject of such great importance; and I now close my short memoir, trusting that ere long the advantages which it is admitted are connected with the systematic noting and registration of facts generally, will be more widely recognised as equally associated with *marine casualties* as with other fields of statistical inquiry.

APPENDIX.

I.—*A Table showing the Numbers, with the Percentages upon the Number of Vessels to which "Lloyd's List," for the Year 1864 (approximately)*

	Abandoned	Anchors and Chains (Loss of).	Burnt or on Fire.	Capture and Piracy.	Cargo Shifted.	Collision.	Leaky.
<i>Sailing Vessels—</i>							
1864.....	240	166	130	250	26	653	688
Percentage on annual total..	3'82	2'64	2'07	3'98	'41	10'31	10'95
1866.....	337	726	143	51	111	1,614	1,171
Percentage on annual total..	3'53	7'60	1'50	'53	1'16	16'89	12'25
1867.....	428	737	121	5	131	1,705	1,169
Percentage on annual total..	4'12	7'10	1'17	'05	1'26	16'43	11'27
<i>Steamers—</i>							
1864.....	3	4	32	68	—	143	20
Percentage on annual total..	'45	'60	4'78	10'15	—	21'34	2'99
1866.....	4	17	30	3	6	344	26
Percentage on annual total..	'39	1'65	2'92	'29	'58	33'43	2'53
1867.....	8	18	17	—	17	357	35
Percentage on annual total..	'76	1'72	1'62	—	1'62	34'10	3'34
<i>Total of Ships and Steamers—</i>							
1864.....	243	170	162	318	26	796	708
Percentage on annual total..	3'49	2'44	2'33	4'57	'37	11'45	10'18
1866.....	341	743	173	54	117	1,958	1,197
Percentage on annual total..	3'22	7'02	1'63	'51	1'11	18'49	11'31
1867.....	436	755	138	5	148	2,062	1,204
Percentage on annual total..	3'82	6'61	1'21	'04	1'30	18'05	10'54

II.—*Table of the Nationalities of the Lost and Missing Vessels reported by the "Bureau Veritas."*

	1866.		1867.	
	Number.	Percentage on Annual Total.	Number.	Percentage on Annual Total.
English	1,461	49'83	1,438	47'23
American	335	11'43	364	11'95
French	261	8'90	273	8'97
Dutch	96	3'27	112	3'68
Prussian	56	1'91	156	5'12
Norwegian	53	1'81	116	3'81
Italian	49	1'67	62	2'04
Hanoverian	48	1'64	—	—
Danish	41	1'40	69	2'27
Austrian	40	1'36	31	1'02
Spanish	40	1'36	45	1'48
Swedish	37	1'26	46	1'51
Hamburg	27	'92	12	'39
Russian	26	'89	39	1'28
Greek	24	'82	36	1'18
Bremen	17	'58	11	'36
Other countries	83	2'83	72	2'36
Unknown	238	8'12	163	5'35
Total	2,932	—	3,045	—

APPENDIX.

Accidents Happened, of Twelve Principal Divisions of Maritime Casualties, extracted from compared with the Years 1866 and 1867 respectively.

Machinery Damaged, or Short of Coals.	Missing.	Mutiny or Sickness, &c., of Crew.	Stranded.	Sunk.	Annual Total Vessels.	
—	74	43	1,702	460	6,283	<i>Sailing Vessels—</i>
—	1'18	'68	27'09	7'32	90'36	1864
—	95	324	3,080	666	9,558	Percentage on annual total
—	'99	3'39	32'22	6'97	90'28	1866
—	93	331	3,174	685	10,377	Percentage on annual total
—	'90	3'19	30'59	6'60	90'84	1867
						Percentage on annual total
58	3	1	183	37	670	<i>Steamers—</i>
8'66	'45	'15	27'31	5'52	9'64	1864
194	3	25	301	62	1,029	Percentage on annual total
18'85	'29	2'43	29'25	6'03	9'72	1866
171	7	25	268	64	1,047	Percentage on annual total
16'33	'67	2'39	25'60	6'11	9'16	1867
						Percentage on annual total
58	77	44	1,885	497	6,953	<i>Total of Ships and Steamers—</i>
'83	1'11	'63	27'11	7'15	—	1864
194	98	349	3,381	728	10,587	Percentage on annual total
1'83	'93	3'30	31'94	6'88	—	1866
171	100	356	3,442	749	11,424	Percentage on annual total
1'50	'88	3'12	30'13	6'56	—	1867
						Percentage on annual total

II. *Contd.*—

The description of casualty was reported as under :—

	1866.		1867.	
	Number.	Percentage on Annual Total.	Number.	Percentage on Annual Total.
Collision	130	4'43	149	4'89
Condemned	160	5'46	177	5'81
Stranded and abandoned at sea	2,336	79'67	—	—
„	—	—	1,433	47'06
Collisions at sea	—	—	220	7'23
Sinkings „	—	—	452	14'84
Explosion	4	'14	5	'16
Fire	101	3'45	79	2'60
Cut by ice	15	'51	8	'26
Unknown	—	—	319	10'48
Missing	186	6'34	203	6'67
Total	2,932	—	3,045	—

III.—A Table showing the Number of Wrecks and Casualties reported in "Lloyd's List" the Average and Percentages for the

	Number of Vessels.	Number of Casual- ties.	Nature of								
			Missing.	Aban- doned.	Collision.	Sinking from Causes other than Col- lision.	Stranded.	Capture.	Piracy.	Burnt or on Fire.	Dis- masted or Dis- abled.
<i>Sailing Vessels—</i>											
1868	2,632	2,909	23	91	453	101	843	—	—	33	149
Percentages	—	—	'79	3'13	15'57	3'47	28'98	—	—	1'13	5'12
Average of } two pre- vious yrs. }	3,392	3,832	31	128	546	145	1,008	5	4	37	86
Percentages	—	—	'81	3'35	14'26	3'78	26'31	'14	'10	'97	2'26
<i>Steamers—</i>											
1868	280	297	5	—	77	6	86	—	—	2	9
Percentages	—	—	1'68	—	25'92	2'02	28'96	—	—	'67	3'03
Average of } two pre- vious yrs. }	302	323	2	3	80	13	73	1	—	2	1
Percentages	—	—	'77	1'08	24'73	4'02	22'57	'15	—	'77	'46
<i>Total Ships and Steamers</i>											
1868	2,912	3,206	28	91	530	107	929	—	—	35	158
Percentages	—	—	'87	2'84	16'53	3'34	28'98	—	—	1'09	4'93
Average of } two pre- vious yrs. }	3,694	4,155	33	132	626	158	1,081	6	4	39	88
Percentages	—	—	'81	3'18	15'07	3'8	26'01	'14	'10	'95	2'12

1868.]

Relation to Shipping Casualties.

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during the First Quarter of 1868, with the respective Percentages thereon, compared with same period of the Two Previous Years.

Accident.								Lives.			
Jettison of Cargo under Deck.	Jettison of Deckload or Washing Over-board.	Leaky.	Loss of Anchors and Chains.	Machinery Damaged or Short of Coals.	Mutiny, Sick-ness, Casualty to Crew, &c.	Ship Damaged, Loss of Bul-warks, &c.	Water-logged.	Crews Saved.	Crews Drowned	Lives Lost as far as Re-ported.	
56 1'93	21 '72	286 9'83	151 5'19	— —	70 2'41	628 21'59	4 '14	295 —	24 —	— —	<i>Sailing Vessels—</i> 1868 Percentages
55 1'44	56 1'47	369 9'64	344 8'98	— —	116 3'04	887 23'15	12 '3	166 —	9 —	— —	{ Average of two pre- vious yrs. Percentages
4 1'35	7 2'35	4 1'35	2 '67	52 17'51	1 '34	42 14'14	— —	21 —	2 —	— —	<i>Steamers—</i> 1868 Percentages
2 '77	7 2'16	10 3'24	11 3'4	66 20'56	8 2'47	41 12'83	— —	5 —	— —	— —	{ Average of two pre- vious yrs. Percentages
60 1'87	28 '87	290 9'05	153 4'77	52 1'62	71 2'21	670 20'9	4 '13	316 —	26 —	287 —	<i>Total Ships and Steamers</i> 1868 Percentages
57 1'38	63 1'53	380 9'14	355 8'54	66 1'6	124 3'	928 22'34	12 '28	171 —	9 —	458 —	{ Average of two pre- vious yrs. Percentages